

#3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Patrik HARTHERZ
Based on : PCT/DE 03/02001
For : METHOD FOR EXHAUST-GAS POSTTREATMENT AND
APPARATUS THEREFOR

Docket No. : R.303742

Customer No. : 02119

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: March 2, 2005

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97(b),
AND EXPLANATION OF THE RELEVANCE OF THE CITED PRIOR ART**

Sir:

The undersigned hereby requests that the prior art cited on the attached prior art statement be placed of record in the application file and be considered by the examiner.

This citation of prior art is made under 37 CFR 1.97(b), since it is being filed within three months of the filing date and before the mailing of a first Office action.

The relevance of the prior art cited on the attached form 1449 is as follows:

Appl. No. Unknown
 Based on PCT/DE 03/02001
 Prior to first Office Action

US 6,038,854

This patent teaches a non-catalytic two-stage process for the removal of NO_x and particulates from engine exhaust. The process comprises a first stage in which plasma converts NO to NO₂ in the presence of O₂ and hydrocarbons. A second stage, which preferably occurs simultaneously with the first stage, converts NO₂ and carbon soot particles to respective environmentally benign gases that include N₂ and CO₂. By pre-converting NO to NO₂ in the first stage, the efficiency of the second stage for NO_x reduction is enhanced while carbon soot from trapped particulates is simultaneously converted to CO₂ by reaction with the NO₂ (that converts to N₂). For example, an internal combustion engine exhaust is connected by a pipe to a chamber where carbon-containing particulates are electrostatically trapped or filtered and a non-thermal plasma converts NO to NO₂ in the presence of O₂ and hydrocarbons. Volatile hydrocarbons (C_xH_y) from the trapped particulates are oxidized in the plasma and the remaining soot from the particulates reacts with the NO₂ to convert NO₂ to N₂, and the soot to CO₂. The nitrogen exhaust components remain in the gas phase throughout the process, with no accompanying adsorption.

US 5,806,305

This patent teaches a method and apparatus for improving the conversion efficiency of a catalytic converter for treating exhaust gases produced from the combustion of a fuel. The apparatus reduces pollutants from incomplete combustion, wherein the reduction in pollutants is achieved by the introduction of ozone, upstream from the catalytic converter, to improve the efficiency of the catalytic converter.

Appl. No. Unknown
Based on PCT/DE 03/02001
Prior to first Office Action

DE 34 40 689 A1

This patent teaches a process for decreasing pollutants in motor vehicle exhaust gases. The process is based upon injecting ozone (71) in a metered manner into the exhaust system (4) of the engine (3).

WO 01/92694 A1

This patent teaches a plasma system for removing soot and nitrogen oxides (NO_x) in exhaust gas from diesel engines. The system comprises a diesel particulate filter for accommodating a honeycomb-type porous element and at least one pair of electrodes. A plasma reactor is mounted downstream or upstream of the diesel particulate filter and creates a predetermined amount of plasma. A catalytic reactor is mounted downstream of the plasma reactor or diesel filter and is filled with a catalyst selected from the group 1B metals. A hydrocarbon-feeding means for feeding hydrocarbon to exhaust gas is connected to an arbitrary position upstream of the plasma reactor. Soot and NO_x in the exhaust gas, which are components harmful to human beings, and are also pollutants, can be effectively removed at a normal pressure by use of such a system.

WO 00/43102

This patent teaches a process and apparatus for the treatment of internal combustion engine exhaust gases. A non-thermal plasma is used to promote the removal of particulate carbonaceous emissions via the oxidation of NO to NO₂ and its subsequent reaction with the particulates.

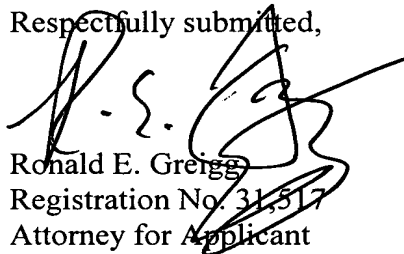
Appl. No. Unknown
Based on PCT/DE 03/02001
Prior to first Office Action

WO 00/74823 A1

This patent teaches a method for treating exhaust gas of diesel engines which produces low quantities of NO_x. The method comprises a first step in which HC is oxidized, producing CO₂ and H₂O, and a second step in which soot is combusted by reaction with NO₂. The method is characterized by the oxidation of ammonia (or a precursor thereof) to form NO_x, and the introduction of the thus formed NO_x, into the exhaust gas before the performance of the second step.

Examination of this application is respectfully requested.

Respectfully submitted,



Ronald E. Greigg
Registration No. 31,517
Attorney for Applicant

GREIGG & GREIGG, PLLC
1423 Powhatan Street, Suite One
Alexandria, VA 22314

Telephone: 703-838-5500
Facsimile: 703-838-5554

REG/elb
Customer No. 02119
J:\Bosch\R303742\05-01-31, R303742, IDS.wpd

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Docket Number (Optional)

R.303742

Application Number

10/526309
62 MAR 2005

Applicant(s)

Patrik HARTHERZ

Filing Date

March 2, 2005

Group Art Unit

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6,038,854	03-21-2000	PENETRANTE et al.			
		5,806,305	09-15-1998	MILLER et al.			

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO
		DE 34 40 689 A1	05-15-1986	Germany				✓
		WO 01/92694 A1	12-06-2001	World IPO			✓	
		WO 00/43102 A2	07-27-2000	World IPO			✓	
		WO 00/74823 A1	12-14-2000	World IPO			✓	

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.